V. Douglas #18 / Reg. for Recons.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Kevin WILSON et al.
Serial No. : 09/595,074 — Group Art Unit 3737
Filed : June 16, 2000 — Examiner A. Imam
For : ULTRASONIC BONE TESTING WITH COPOLYMER TRANSDUCERS

FIRST REPLY TO FINAL REJECTION

1185 Avenue of the Americas
New York, N.Y. 10036
March 10, 2003

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R:

In response to the final Office Action dated September 13, 2002, applicants respectfully request reconsideration and allowance of the above-identified application for the reasons set forth below.

Claims 1 - 28 are in the application. All the claims have been rejected under 35 U.S.C. §102(e) as anticipated by Mendlein et al.

As explained in applicants' response to the previous Office Action, all of applicants' claims are expressly limited either to ultrasonic bone testing (in claim 25, osteoporosis) apparatus comprising ultrasonic transducers at least one of which comprises a copolymer, or to a method of determining a characteristic of a bone using ultrasonic transducers at least one of which comprises a copolymer; i.e., all the claims are expressly limited to use of ***copolymer*** transducers in bone testing apparatus and methods. An illustrative copolymer is poly(vinylidene fluoride-trifluoroethylene) (specification, p. 19, lines 4-28).

Mendlein et al., in contrast, contains no teaching of the use or provision of any copolymer transducer, and indeed does not mention copolymers at all, but merely describes ultrasonic transducers made of polyvinylidene fluoride for bone testing methods and apparatus (col. 8, lines 45-47). Polyvinylidene fluoride is not a copolymer; hence, a disclosure of its use is not a disclosure of the use of any copolymer.

In the rejection, the Examiner relies on the disclosure in Mendlein et al. of polyvinylidene fluoride transducers. Notwithstanding the complete absence in Mendlein et al. of any mention of copolymers, the Examiner holds that the claimed provision or use of copolymer transducers in methods and apparatus for determining bone characteristics is not "a novel feature," because "Piezoelectric transducer made of copolymer, e.g., copolymers of vinylidene fluoride and trifluoroethylene, is well known in art of ultrasonic measurement systems" as assertedly shown by a number of newly cited U.S. patents (final Office Action, p. 3). Applicants respectfully submit that this holding of lack of novelty is contrary to settled principles of law.

Under §102, anticipation (lack of novelty) exists only when each and every element of a claimed invention is disclosed in a single prior art reference. *Akzo N.V. v. United States Int'l Trade Comm'n*, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986). An undisclosed species is not anticipated by a generic disclosure "merely because the generic will *include* the specific," *In re Jacobson*, 160 U.S.P.Q. 795, 800 (C.C.P.A. 1969); and copolymers (to which all the present claims are limited) are not even species of homopolymers (such as the Mendlein et al. polyvinylidene fluoride).

Mendlein et al., therefore, does not itself anticipate any claim of the present application. Moreover, Mendlein et al. cannot be combined with any of the newly cited patents to negate *novelty* under §102 in view of the above-noted requirement that

each and every element of a claimed invention must be disclosed in a single reference in order to defeat novelty.

Indeed, the final Office Action did not combine (with Mendlein et al.), or otherwise apply, any of the newly cited patents in the rejection of any claim.[1] Had the Action done so, it could not have been made final, since a rejection on a combination of references -- which could only be a §103 (obviousness) rejection -- would have been a new ground of rejection not necessitated by applicants' response to the previous Action.

In the final Office Action (as in the only previous Office Action), no rejection was made under §103. Thus, the sole ground of rejection set forth in the final Office Action is clearly untenable.

In any event, nothing is seen in Mendlein et al. to suggest or make obvious the use of any copolymer, in place of the single polymer (polyvinylidene fluoride) disclosed, in or as a transducer in bone measuring methods and apparatus. There is, as stated, simply no mention of copolymers at all in the reference. It follows that the limitation to copolymer transducers distinguishes all of applicants' claims unobviously, hence patentably, over Mendlein et al.

As for the other references, newly cited in the final Office Action as assertedly showing piezoelectric copolymer transducers, it is not seen (nor is it asserted by the Examiner) that any of these references discloses or suggests the use or suitability of copolymer transducers for bone testing apparatus or methods. Whatever they may be said to show regarding uses of copolymer transducers for other types of applications, it would not follow that their use in the methods and apparatus of Mendlein et al. would be obvious.

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[1]Two of these newly cited patents (Toda and Shimoda et al.) are too recent in date to be references against the present application under §102(e)/§103).

The final Office Action asserts, further, that a recital "of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art." Applicants submit that the recitals of use to test bone, in combination with other recitals of their apparatus claims (e.g., a pair of transducers and mounting structure supporting them in facing spaced relation to each other so as to be respectively positionable on opposite sides of and both coupled ultrasonically to an animal portion containing a bone), do indeed define structural differences between the claimed invention and such prior art devices as, for example, those of Proudian, deceased et al. (a probe assembly for insertion within a human coronary artery) and Hashimoto et al. (thrombus resolving treatment apparatus), and also distinguish over references (e.g., Ohigashi et al., Van der Spiegel et al., Dias et al. and Finsterwald et al.) that (while describing transducers) do not teach any specific type of apparatus arrangement for their disposition for use.

For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,

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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Commissioner for Patents, P.O. Box 2327, Arlington, VA 22202.

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Date: MARCH 10, 2003